



KNOWLEDGE MANAGEMENT IN HIGHER EDUCATION INSTITUTIONS: REQUIREMENTS AND CHALLENGES

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Abstract:

Knowledge has become the most important organizational resource through which institutions achieve their objectives. As higher education institutions are knowledge-intensive organizations engaged in the production, dissemination, and application of knowledge in the fields of teaching, scientific research, and community service, they are required to adopt knowledge management as a modern administrative approaches.

This research paper aims to present the different concepts related to knowledge management in higher education institutions, as well as the rationale and requirements for its implementation, the challenges it faces, and a set of recommendations to address these issues.

Keywords: Knowledge; knowledge management; higher education institutions

Introduction:

The world has witnessed profound transformations that have driven the transition to the immaterial era, in which investment in knowledge has surpassed investment in equipment (Djeflat, 2005). Knowledge has thus become a strategic resource that enhances organizational competitiveness (Prusak & Davenport, 1998; Yang et al., 2009; Nonaka et al., 2000). It is understood as a process of converting information and experience into meaningful and useful relationships that individuals can benefit from (Koshelieva et al, 2023, p. 03), knowledge comprises two types: explicit knowledge, which is detached from the individual's mind and can be easily shared and disseminated through documents and information technologies

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(Datoussaid et al, 2018, pp. 4–5); and tacit knowledge, which is personal and difficult to share due to its strong link to an individual's tasks and experiences (Nonaka, 1991, p. 14). Knowledge is considered a fundamental driver of wealth creation, growth, and competitiveness at the level of individuals, organizations, and nations (Wiig, 1997).

Today's business world is characterized by constant instability, especially within the context of the knowledge economy, which is built upon knowledge and intellectual assets. This reality has compelled organizations to gather as much information as possible in order to confront risks and seize opportunities. Consequently, interest in knowledge management has increased significantly. While the external environment is marked by uncertainty, knowledge has become the element of certainty and a strategic resource for organizations. (Nawaz & Gomes, 2014)

Higher education institutions are knowledge-intensive organizations that contribute to sustainable development through their core functions of teaching, scientific research, and community service. These functions are closely linked to the creation, dissemination, application of knowledge and the academic environment provides a suitable context for implementing knowledge management processes (Benziane & Zemouri, 2014), to maintain their competitiveness in a knowledge-based economy, higher education institutions must manage knowledge processes within a deliberate and conscious strategy that ensures the provision and support of the requirements necessary for their implementation (Ramjeawon & Rowley, 2017). Knowledge management serves as a structured system aimed at supporting continuous learning, fostering innovation, and facilitating knowledge sharing and exchange in order to achieve the strategic objectives of higher education institutions. (Nawaz & Gomes, 2014)

Based on the above, we can pose the main question: **What are the requirements for implementing knowledge management in higher education institutions, and what challenges do they face?**

Study Objectives: based on the main research question, the objectives of this study are as follows:

- To clarify the concept of knowledge management in higher education institutions and the rationale for its implementation;



- To present the requirements necessary for implementing knowledge management in higher education institutions;
- To examine the various challenges that hinder the successful implementation of knowledge management in higher education institutions.

The importance of the study: the study gains its importance from the importance of the subject of knowledge management, which is considered a modern trend in contemporary organizations. Knowledge management helps higher education institutions establish a knowledge society and supports continuing education and creativity, as knowledge represents the outputs and outcomes of higher education institutions' activities.

Study methodology: in order to understand the subject of the study, we relied on the descriptive approach to present various concepts related to our topic, relying on various sources of research and references.

1- Knowledge management

Before discussing knowledge management and the various concepts related to it, it is necessary to define knowledge and its types

1.1- Definition of knowledge: before discussing the definition of knowledge, we must review the definition of data, information and wisdom.

Data definition: it is a set of raw elements (Liebowitz & Megbolugbe, 2003, p. 189) pointed out (Prusak & Davenport, 1998, p. 02), data are separate, objective facts related to events that do not provide explanations or judgments, and take several forms such as symbols, numbers and letters. (Bouthillier & Shearer, 2002)

Definition of information: it is data that has been processed in a specific context (Prusak & Davenport, 1998; Alavi & Leidner, 2001), and is defined as data that has been evaluated and validated. (Bouthillier & Shearer, 2002)

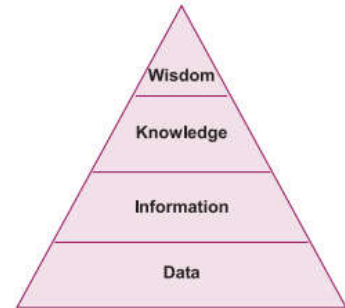
Definition of wisdom: it means the intrinsic ability to employ knowledge positively and constructively and to distinguish between methods that lead to the generation of new ideas with a high level of abstraction and vision. (Faucher et al, 2008, p. 05)

Definition of knowledge: most individuals believe that knowledge is deeper and broader than data and information. It is an integrated and

renewed combination of experiences, values, and contextual information (Prusak & Davenport, 1998, p. 04), meaning the ability to act and make information applicable (Liebowitz & Megbolugbe, 2003, p. 189), and it is also defined as the ability to determine the situation and act as its owner deems appropriate. (Nonaka et al, 2006, p. 1182)

Figure 1: Pyramid of knowledge

Source: (Faucher, p. 07)



1.2-Types of knowledge: Polanyi (1966)

was one of the first researchers to distinguish between explicit and tacit knowledge, which was later confirmed by Nonaka & Takeuchi (1995). Explicit knowledge is general, documented, and organized knowledge that is easy to capture and share using information and communication technology (Mårtensson, 2000, p. 209). It is knowledge that can be expressed and translated through writing or drawings (Nonaka et al , 2006, p. 1182), in contrast, we find tacit knowledge that is related to the senses, intuition, and movement skills (Nonaka et al, 2006, p. 1182), which is the personal knowledge inherent in the human mind that is difficult to document and is transmitted from one individual to another through interactions and practices that require experience and skill. (Mårtensson, 2000, p. 209)

1.3- Definition of knowledge management: researchers have provided many definitions of knowledge management, including:

Knowledge management refers to identifying and exploiting collective knowledge in an organization to compete with other organizations, enhance responsiveness and increase innovation capacity. (Alavi & Leidner, 2001, p. 113)

In addition, it is the process of creating value from an organization's intangible assets to leverage knowledge inside and outside the organization and find the best ways to share and manage it. (Liebowitz & Megbolugbe, 2003, p. 189)

1.4- Knowledge management processes: it is a set of management practices that support effective and efficient management of



knowledge in order to achieve the organization's goals (Andreeva & Kianto, 2012, p. 620), knowledge management processes include:

1.4.1-Knowledge acquisition: it is the organizational processes that aim to collect information from outside the organization, such as external networks and customers from whom the organization must acquire knowledge, such as feedback systems, data mining, and cooperation with research institutions. (Kianto et al, 2016, p. 624)

1.4.2-Knowledge creation: it is a continuous process that occurs through interaction and the exchange of explicit and tacit knowledge between individuals and groups within an organization and between different organizations (Choi & Lee, 2002, p. 176). It refers to the organization's ability to produce new ideas and innovative solutions through the interaction between explicit and tacit knowledge in four stages (socialization, internalization, synthesis, and dissolving) according to the SECI model. (Kianto et al, 2019, p. 182)

Socialization: It refers to the conversion of tacit knowledge into tacit knowledge through the sharing of experiences to generate additional tacit knowledge, as well as through observation, practice, and mentoring, provided that a certain level of experience is present so that the individual can understand what others are thinking (Nonaka & Konno, 1998, p. 42). This process does not involve language; the trainee works with the mentor and learns the craft not through conversation, but through observation and imitation. (Nonaka et al, 1996, p. 836)

Externalization: it refers to the conversion of tacit knowledge into explicit knowledge. When knowledge is transformed from tacit to explicit, it becomes easier to share with others and serves as a source for new knowledge. For instance, employees expressing their tacit knowledge accumulated over years in workshops can enhance the manufacturing process, in addition to employing metaphors, analogies, and models. (Nonaka et al, 2000, p. 09)

Combination: it refers to the conversion of explicit knowledge into explicit knowledge by integrating various sources of explicit knowledge into a new knowledge structure. This can be achieved through multiple channels such as documents, meetings, phone calls, and electronic networks. Organizing, sorting, and combining existing information also leads to the creation of new knowledge. In higher

education, this pattern is reflected in academic training programs at universities. (Nonaka et al, 1996, p. 839)

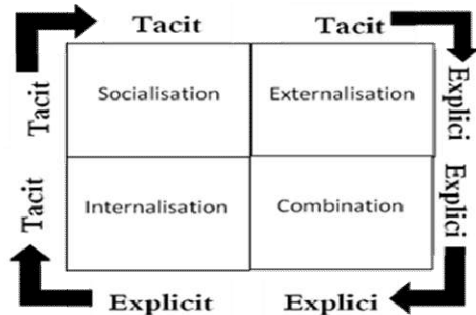
Internalization: it means transforming explicit knowledge into implicit knowledge by introducing experiences into implicit knowledge bases in addition to documenting explicit knowledge for the benefit of the organization's members (Nonaka & Konno, 1998, p. 45), this pattern is linked to learning and practice. When an individual trainee in the organization reads documents related to his job and the organization, this increases his tacit knowledge. (Nonaka et al, 2000, p. 10)

Figure 2: SECI model of knowledge creation

Source: (Nonaka et al, 2000, p. 12)

1.4.3- Knowledge storage:

many studies have proven that organizations create new knowledge but at the same time are exposed to the loss of knowledge, especially tacit knowledge. Therefore, knowledge storage, organization and retrieval represent an important aspect of effective knowledge management. The storage process is linked to organizational memory, which includes knowledge in various forms such as documents, knowledge stored in electronic databases, human knowledge stored in expert systems, as well as procedures, processes and tacit knowledge (Alavi & Leidner, 2001, p. 118). Organizing and structuring knowledge through collecting or integrating knowledge that is easy to access and disseminate within the organization reduces duplication and improves efficiency. (Ling-hsing et al, 2015, p. 436)



1.4.4- Knowledge dissemination: it is considered one of the important processes in knowledge management in an organization, as knowledge is transferred to the sites that need it and use it. The organization must ensure that implicit knowledge is transformed into explicit knowledge and work to disseminate it to preserve implicit knowledge from loss (Ling-hsing et al, 2015, p. 436). Disseminating and sharing knowledge throughout the organization precedes its application (Bhatt, 2001, p. 72), and is considered a crucial factor that



helps the organization respond quickly to variables, innovate and achieve competitive advantage. (Andreeva & Kianto, 2011, p. 1019)

1.4.5- Knowledge application: applying knowledge is more important than knowledge itself (Alavi & Leidner, 2001, p. 122). Therefore, organizations must employ their knowledge in products, services, and processes, otherwise they may face difficulties in maintaining their competitive advantage if they are unable to identify the necessary knowledge at the right time, especially in a competitive environment based on creativity and innovation. (Bhatt, 2001, p. 72).

2- Knowledge management in Higher education institutions:

Higher education institutions are knowledge-intensive organizations (Ramjeawon & Rowley, 2017, p. 01), they are centers of knowledge and science, aiming to produce knowledge, disseminate it, and provide quality academic education that serves society and achieves its well-being (El-Derawi & Skaik, 2025, p. 470), it is responsible for producing, creating and disseminating knowledge in society. (Gera, 2012)

2.1- Definition of Knowledge management in Higher education institutions:

It is a set of methodological approaches that collect, organize, and disseminate knowledge within higher education institutions to support teaching and scientific research. It also deals with tangible resources such as scientific research and articles and tacit knowledge such as scientific expertise and experiments. (Seraa, 2025, p. 58)

2.2- Justifications for applying knowledge management in higher education institutions:

The environment of higher education institutions is conducive to knowledge management processes. Among the reasons that have led to the adoption of knowledge management in higher education institutions are the following: (Seraa & Bachir, 2019, p. 295)

- Higher education institutions have an advanced and renewable information infrastructure;
- Knowledge is exchanged and disseminated among all actors in higher education institutions, including professors, students and staff, through programmes, courses and training;
- The academic environment is safe and reliable for disseminating and sharing knowledge;

- Higher education institutions are keen to maintain their position and improve their rankings issued by newspapers and magazines;
- Higher education institutions seek to improve the management of their internal documents as well as develop the level of knowledge and information exchange;
- The growing need for new and innovative strategies that enable higher education institutions to meet internal and external challenges.

2.3- Benefits of applying knowledge management in higher education institutions:

Classified (Kidwell et al, 2000, pp. 32-33) the benefits of applying knowledge management in higher education institutions are as follows:

2.3.1-In the field of scientific research: enhancing competitiveness and the ability to respond to contracts, research grants and business opportunities, reducing time and resources directed to research, managing specialized and diverse research, improving internal and external services, and benefiting from previous research.

2.3.2-In the field of academic curriculum development: improving the quality of programs and curricula by identifying appropriate practices and monitoring outcomes; reviewing and updating academic curricula; supporting the efforts of faculty members, especially newly appointed staff; integrating technology into administrative services related to teaching and learning; enhancing responsiveness by drawing on faculty experiences, student evaluations, and feedback from institutions and partners and designing interdisciplinary programs and curricula.

2.3.3-In the field of student and alumni services: enhancing the various services provided to students and graduates; improving the capabilities of faculty members and staff; and consolidating and coordinating efforts related to student supervision.

2.3.4-In the field of administrative services: improving the efficiency and effectiveness of administrative services, enhancing the ability to identify and implement improvement efforts, supporting the implementation of decentralization in administrative work, complying with administrative procedures such as purchasing procedures,



purchase cards and policies of preferred suppliers, improving the ability to communicate and respond.

2.3.5-In the field of strategic planning: supporting the adoption of decentralized strategic planning to make the best decisions, improving the exchange of internal and external information would reduce the burden and excessive effort, enhancing the ability to develop modern and market-focused strategic plans, exchanging knowledge at various levels creates an educated organization that responds to renewed market trends.

2.4- Fields of Knowledge Management in Higher Education Institutions:

The knowledge underlying the activities of higher education institutions consists of knowledge creation, dissemination, and application. Together, these processes constitute knowledge management within higher education institutions. Its main fields include the following (Saeed et al, 2022, pp. 130–131).

2.4.1-Teaching and Learning:one of the primary functions of higher education institutions is to provide education to members of society, which requires meeting a set of conditions to deliver high-quality education. This enables students to acquire cognitive skills, apply learned facts to address problems and situations, and develop creative thinking. The role of higher education institutions in knowledge societies has evolved and expanded to contribute to building knowledge-based communities that support knowledge generation, innovation, and the development of human capital.

2.4.2- Community service: the role of educational institutions has gone beyond their traditional role to move beyond their surroundings and focus on serving and interacting with society by applying and using knowledge to serve the latter. This has made these institutions open organizations.

2.4.3-Scientific research: it is considered one of the most important pillars of the higher education system, and the most important tasks that fall upon it through creating knowledge, developing it and preserving it in order to solve society's problems and advance development. Higher education institutions support their researchers to acquire and develop their research skills in order to achieve the

desired goals and make sound decisions that enhance knowledge production and build knowledge-based societies.

2.5- Requirements for applying knowledge management in higher education institutions:

Requirements for applying knowledge management in higher education institutions are the set of mechanisms and factors that support the generation of knowledge, the sharing of which facilitates its dissemination and application (Ramjeawon & Rowley, 2017, p. 02), as defined as the set of structural and functional conditions responsible for the success of knowledge management processes (Yang et al, 2009, p. 894), both (Gill, 2009; Fatma & Mahfoud, 2025) identified requirements for applying knowledge management in higher education institutions in:

2.5.1- Identifying core competencies: higher education institutions must define their vision and core missions of scientific research and education. These institutions must define their core competencies that support and guide knowledge management processes in a way that serves scientific research and education, which complement each other. Promoting education-related research can enhance educational practices, while focusing on education related to improving research productivity can support scientific research. (Gill, 2009, p. 609)

2.5.2- Changing organizational culture: organizational culture is a set of beliefs that express the organization's identity and guide its activities and decisions (Ramachandran et al, 2013, p. 79). Culture change occurs through introducing changes and procedures to the current culture that can be applied in the short term, but sustainability requires a radical change in the culture of the organization as a whole. Organizational culture must facilitate knowledge exchange, teamwork, creativity and innovation in line with the strategic objectives of the organization.

2.5.3- Partnership with the community: considering that higher education institutions are open organizations that work to serve the community, they create strategic relations with the community based on the exchange of political, economic, social and cultural interests, and the local community has a major role in supporting the efforts of educational institutions towards implementing knowledge management effectively. (Fatma & Mahfoud, 2025, p. 330)



2.5.4- Rewards and Incentives: rewards and incentives are among the most important motivators for the behavior of individuals in higher education institutions. Rewards focus on an individual's achievements in research and scholarship, represented by publications. This poses a challenge for the institution, which seeks to ensure that the incentive system reflects individuals' contributions to knowledge sharing and meets their expectations, whether material or moral. (Ramjeawon & Rowley, 2017, p. 03)

2.5.5- Strategic Leadership: leadership is the ability of leaders to align knowledge management behaviors with an organization's overall strategy, enhance knowledge, its operations and facilitate the development of higher education institutions (Ramachandran et al, 2013, p. 79), which requires providing leaders with the knowledge, capabilities and skills necessary to make strategic decisions that support improving knowledge acquisition processes and effective communication, then higher education institutions are obligated to employ strategic leaders capable of bringing about change and directing knowledge management processes in a way that serves the goals of educational institutions. (Fatma & Mahfoud, 2025, p. 330)

2.5.6- Knowledge and Technology Infrastructure: technological infrastructure refers to non-human systems that facilitate the creation of a knowledge infrastructure that deals with the technical aspect of knowledge management, concerned with the entry, storage, organization, retrieval and dissemination of knowledge. Technological infrastructure consists of hardware, software and databases that are designed for the end user and facilitate his work (Gill, 2009, p. 611). In addition to knowledge repositories that include online training courses, email, chat, forums, as well as knowledge mapping for knowledge sharing. (Ramjeawon & Rowley, 2017, p. 04)

2.6- Challenges of applying Knowledge Management in Higher Education Institutions:

There are many challenges that hinder the application and success of knowledge management in higher education institutions. These can be classified into individual, organizational and technological challenges. (Makambe, 2014; Elbah, 2025)

2.6.1- Individual challenges: these are the challenges associated with different members within the educational environment and are:

- Lack of awareness of the importance of managing and disseminating knowledge among individuals and stakeholders;
- Individuals' fear of sharing their personal data is due to a lack of security and intellectual property protection;
- Lack of desire for cooperation and teamwork that helps assess the current situation and develop future plans;
- Differences between individuals in terms of competence, experience, language and ethnic backgrounds, which limit communication;
- Lack of dialogue and trust among stakeholders;
- Lack of moral incentives.

2.6.2- Organizational challenges: related to various conditions that negatively affect knowledge processes and include:

- Lack of integration of knowledge management strategy into the organization's overall strategy;
- Lack of leadership support for knowledge management and communication values, practices;
- Lack of various rewards and incentives that stimulate the dissemination and exchange of knowledge;
- Lack of infrastructure and resources necessary to implement knowledge management;
- Knowledge hoarding by those in positions of authority;
- Loss of knowledge due to the departure of individuals possessing tacit knowledge that has not been converted into explicit knowledge;
- Hierarchical organizational structures that limit communication and knowledge flow.

2.6.3- Technological challenges: among the challenges that hinder the success of knowledge management in higher education institutions, we mention:

- Lack of integration of ICT with processes and people;
- Lack of immediate maintenance and support of IT systems, which hinders work and communication;
- Hesitation to use technology due to lack of experience related to it;
- Differences in levels of technological expertise between stakeholders;



- Poor use of technology, especially artificial intelligence applications;
- Failure to train stakeholders on technological programs and applications.

Conclusion:

In light of the knowledge economy, the rapid change in the academic environment, and increasing competition for knowledge production and creation, it has become imperative for higher education institutions to implement knowledge management as a modern approach that enhances the educational process and the quality of its outcomes, supports scientific research and knowledge production, enhances services provided to society, and improves decision-making.

The success of a knowledge management project in higher education institutions depends on the availability of a suitable and supportive environment for knowledge management processes, in addition to adopting a supportive organizational culture and strategic leadership, adopting a system of rewards and incentives that encourage the creation, sharing and application of knowledge, identifying core competencies and providing knowledge bases and information and communication technology. Therefore, these institutions must be keen to provide the requirements that support the application of knowledge management.

Among the **recommendations** that can be made, we mention:

- Integrating knowledge management into the overall strategy of higher education institutions;
- Adopting knowledge management as an approach that supports the teaching and research process, enhances individual and organizational performance, and strengthens the capacity for creativity and innovation;
- Adopting an organizational culture and flexible structures that support and facilitate knowledge management processes;
- Recruiting and appointing administrative leaders who participate in and support knowledge management processes within higher education institutions;

- Providing the infrastructure and technology that support the implementation of knowledge management in higher education institutions;
- Adopting a rewards and incentives system linked to knowledge management practices.

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